

That which is claimed is:

1. A modular reference electrode assembly adapted for serial integration within an orientation independent array of working electrodes, the working electrodes
5 disposed in a plurality of electrode receiving positions on a support member of an integrated sample analyzer, said reference electrode comprising:
 - a flow cell of modular construction sized and shaped for selective disposition in any of the plurality of electrode receiving positions on the support member, wherein said flow cell is adapted for being serially retained within a sample flow path of the array;
 - 10 a liquid junction disposed within said flow cell;
 - a remote reservoir for holding a liquid junction solution, said remote reservoir being connected to said flow cell by a liquid junction flow path, said liquid junction flow path being separate from the sample flow path;
 - a reference contact region in physical contact with said liquid junction solution;
 - 15 said liquid junction including a constraint having a region of porous material permeable to water and salts, said constraint having a contact portion adapted for contacting said liquid junction solution on one side thereof and a sample solution on an other side thereof;
 - said constraint adapted to substantially prevent bulk flow of said liquid junction
20 solution therethrough, and to provide an orientation independent, stable liquid junction;
 - means for moving said liquid junction solution from said reservoir to said constraint and for applying pressure sufficient to maintain said liquid junction solution in contact with said constraint at substantially any orientation of said array of
25 electrodes wherein said flow cell is operable at substantially any orientation.